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XI.—*On a Collection of Homoptera made in Southern Africa.*
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DURING a recent sojourn in the Transvaal and other parts of South Africa, as a result of my own collecting and the kind assistance of friends in more remote localities, I acquired a considerable number of different species belonging to the Cicadidæ and other Homoptera. From Mr. Guy Marshall, in Mashunaland, I received nine species of the first, captured within a radius of eight square miles near Gadzima, on the Middle Umfuli River. As no species have hitherto been recorded from this portion of Rhodesia, I give an enumeration of the same:—

Fam. Cicadidæ.

<i>Pæcilopsaltria leopardina</i> , Dist.	<i>Platypleura centralis</i> , sp. n.
— <i>horizontalis</i> , Karsch.	— <i>brevis</i> , Walk.
— <i>bombifrons</i> , Karsch.	<i>Tibicen nigricans</i> , Stål.
— <i>Marshalli</i> , sp. n.	<i>Monomatapa insignis</i> , gen. et sp. n.
<i>Platypleura Rutherfordi</i> , Dist.	

It is interesting to note that *Platypleura Rutherfordi*, which I originally received and described from the Calabar district of Western Africa, extends its range across the continent to Mashunaland.

Further north from Nyassaland, at Zomba and Fort Johnston, I received from my friend Dr. Percy Rendall four

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species, two of which are also included in the above list. They are as follows:—

Pæcilopsaltria leopardina, Dist. *Platypleura brevis*, Walk.
— *polydorus*, Walk. — *divisa*, Germ.

After my first visit to the Transvaal, I was only able to record the names of three species from that region. I now enumerate thirteen species:—

Pæcilopsaltria furva, sp. n. Waterberg.
— *reducta*, Walk. Rustenburg, Waterberg.
Platypleura semiclara, Germ. Barberton.
— *Hagundi*, Stål. Waterberg.
— *capensis*, Linn. Middelburg.
— *divisa*, Germ. Barberton, Rustenburg, Pretoria.
— *hirta*, Karsch. Barberton, Lydenburg, Rustenburg.
Tibicen nigricans, Stål. Pretoria.
— *carinatus*, Thunb. Pretoria.
— *undulatus*, Thunb. Pretoria.
Callipsaltria longula, Stål. Rustenburg, Pretoria.
— *elongata*, Stål. Rustenburg.
Psilotympana, sp. ? Rustenburg.

For the Barberton specimens I am again indebted to Dr. Percy Rendall during his stay in that district.

At Delagoa Bay I acquired *Pæcilopsaltria reducta*, Walk., and *P. polydorus*, Walk. The scarce and handsome *Melampusalta violacea*, Linn., I find is to be procured on the banks of the Caledon River in Cape Colony. *Pæcilopsaltria Peringueyi*, which I originally described from Damara Land, is to be found as far south and east as Griqualand at least, for I now possess a specimen from Barkly West.

Pæcilopsaltria furva, sp. n.

Head and pronotum ochraceous and moderately pilose; mesonotum and abdomen above black. Head with the central longitudinal and transverse carinæ to face, very broad lateral margins to front enclosing an ochraceous apical spot, a basal spot enclosing ocelli, between which and eyes are some complicated transverse fasciæ, black. Pronotum with a central fascia, widely broadened on anterior and posterior margins; the incisures and extreme sublateral margins black. Mesonotum black, with two obconical linear spots, united at base on anterior margin; two U-shaped fasciæ at base, and anterior half of lateral margins ochraceous; basal cruciform elevation ochraceous, with a central spot and anterior angles black. Abdomen with the posterior segmental margins above narrowly ochraceous. Body beneath with legs and opercula

ochraceous; sternum and legs spotted with black, abdominal segments with central transverse fasciæ and lateral marginal spots black.

Tegmina creamy, mottled with fuscous, the venation ochraceous, but becoming piceous towards apex; basal cell black. Wings blackish, a basal streak irregularly ochraceous to about centre, the outer margins broadly pale hyaline, and with a creamy-white spot near centre of costal margin.

Rostrum reaching the posterior coxæ; opercula moderately overlapping at centre.

Long. ♂ 28 millim.; exp. tegm. 76 millim.

Hab. Transvaal; Waterberg District (*Distant*).

This species is allied to both *P. Trimeni* and *P. Peringueyi*, from either of which, apart from other characters, it may be easily distinguished by the position of the white macular markings to the wings.

Pæcilopsaltria Marshalli, sp. n.

Head and pronotum ochraceous. Head with the area of the ocelli, transverse fasciæ between same and eyes, and basal and central fascia to face black; pronotum with a central fascia widely broadened at anterior and posterior margins, the incisures, and the sublateral margins black; mesonotum black, with a large central linear spot, trifid anteriorly and connected with a lateral fascia on each side, ochraceous; cruciform basal elevation ochraceous, with a small central spot, and one near each anterior angle, black. Abdomen above black, with the posterior segmental margins ochraceous. Body beneath blackish or dark castaneous; opercula, posterior abdominal segmental margins, and legs castaneous or ochraceous.

Tegmina creamy and talc-like, base and four very irregular transverse fasciæ, which are connected inwardly and contain some pale spots, especially at the apices of apical areas, piceous; venation ochraceous, becoming piceous towards apex. Wings blackish, apical third and a large subcostal spot within the black area pale hyaline.

Rostrum just passing the posterior coxæ; opercula moderately overlapping at centre.

Long. ♂ ♀ 15-16 millim.; exp. tegm. 53 millim.

Hab. Mashunaland, Umfili River (*Guy Marshall*: coll. Dist.); banks of the Zambesi (*Fry*, 1893: Cape Town Mus.).

A single female specimen from the Zambesi is much larger than the series I possess from Mashunaland through the kindness of Mr. Marshall. Its dimensions are long. 20 millim., exp. tegm. 63 millim.

Platypleura centralis, sp. n.

Body above ochraceous, with an almost continuous central longitudinal black fascia extending from head to apex of abdomen. Head with a fascia extending between eyes and across base of face and the area of the ocelli, pronotum with the incisures and base of lateral margins, mesonotum with two obconical spots on anterior margin (on each side of which are a small and a much elongated spot) and the frontal area of the basal cruciform elevation black; abdomen with the basal segmental margins black. Body beneath and legs ochraceous, greyishly pilose and more or less spotted with blackish; abdominal segments marked as above.

Tegmina pale, talc-like; the costal membrane, the post-costal area, and the basal cell ochraceous; an elongate costal spot at end of radial area, a spot in basal cell, and the venation (excepting extreme base) black. Wings with the venation ochraceous.

Rostrum long, reaching to quite half the length of the abdomen; opercula well separated at base; lateral pronotal angles prominent, subacute.

Long., ♂ 22, ♀ 24 millim.; exp. tegm. 77 millim.

Hab. Mashunaland, Umfili River (*Guy Marshall*).

Platypleura absimilis, sp. n.

Head and thorax above pale castaneous; area of the ocelli infuscated; legs ochraceous; mesonotum with two central obconical spots on anterior margin, a longer and more obscure spot on each lateral area, and a small spot in front of the anterior angles of the basal cruciform elevation, dark fuscous. Abdomen above black. Head beneath, sternum, legs, and opercula dark ochraceous; abdomen beneath dark castaneous.

Tegmina greyish brown, the venation castaneous, two pale spots in radial area, a trifid spot of the same colour separated by the veins of the upper ulnar areas, and a larger discal and more irregular patch of the same hue extending from near lower end of radial area across bases of lower apical areas; a series of alternating pale and darker marginal spots at apices of apical areas, the outer margin pale hyaline. Wings ochraceous, the venation castaneous, the outer third irregularly dark fuscous, broadest at apex and narrowest towards anal angle.

Rostrum just passing posterior coxæ.

Long. ♂ ♀ 18-22 millim.; exp. tegm. 60-75 millim.

Hab. South Africa, Cape Colony? (*Coll. Dist.; Vienn. Mus.*).

This species may at once be distinguished from *P. plumosa* and *P. deusta* by the absence of the central black fascia to the pronotum. It is allied to *P. plumosa* by the wide and relatively short pronotum, but differs by the broader tegmina, shorter abdomen, different markings of the tegmina, &c.

MONOMATAPA, gen. nov.

Body short, robust, widest about centre of abdomen. Head broad, at outer margins of eyes a little wider than mesonotum; ocelli about twice the distance from eyes as from each other; face broad, not prominently tumid, longitudinal sulcation narrow, transverse ridges prominent. Metanotum concavely excavated posteriorly; basal segment of abdomen subacutely and convexly produced anteriorly. Opercula rather large, directed inwardly, much widened posteriorly. Tympana completely exposed. Tegmina with the basal cell longer than broad and the ulnar veins at end of same widely separated; interior ulnar area a little narrower at base than apex; apical areas eight.

Monomatapa, which, by the exposed tympana, belongs to the division Tibiceninae, has a somewhat superficial resemblance to the genus *Tympanoterpes*.

Monomatapa insignis, sp. n.

Body above black; eyes, pronotum (excluding central longitudinal fascia), and the exposed tympana dark castaneous; abdomen rather thickly greyishly pilose; body beneath and legs black; tibiae and tarsi more or less castaneous or ochraceous; opercula ochraceous; lateral areas of the body and opercula thickly greyishly pilose.

Tegmina and wings pale hyaline; the first with the venation blackish, the base narrowly, basal cell, and outer edge of costal membrane ochraceous. Wings with the venation blackish, the base ochraceous, with a darker spot on the abdominal area.

Rostrum short, about reaching the intermediate coxæ; opercula extending over the basal segment of the abdomen, obliquely directed inwardly, widened posteriorly.

Long. ♂ 27 millim.; exp. tegm. 80 millim.

Hab. Mashunaland, Umfili River (*Guy Marshall*).

Fam. Fulgoridæ.

Genus PYROPS.

Of the seven recorded South-African* species I was able

* I include East Africa in the "South African" faunistic region, as recently well proposed by Mr. W. L. Sclater, now directing the South-African Museum.

to bring home five. Of the others, *P. marginatus*, Westw., seems to be confined to some portions of the Cape Colony and *P. turritus*, Gerst., was received from Dar-es-Salaam. *Pyrops* is a tropical and subtropical genus, only occurring in the Transvaal (as far as my experience goes) in the stretch of warm forest country which extends from Delagoa Bay to Durban.

Nyassaland.

P. pustulosus, Gerst. Zomba (*Dr. P. Rendall*).
P. tenebrosus, Fabr. „ „

Mashunaland.

P. claviceps, Karsch. Umfili River (*Guy Marshall*).

Transvaal.

P. intricatus, Walk. Barberton (*Dr. P. Rendall*).

Natal.

P. natalensis, Dist. Durban (*Distant*).

Two of these species—*P. claviceps* and *P. tenebrosus*—range across the continent, being found on the west coast.

Subfam. *EURYBRACHYDINÆ*.

Paropioxys bellus, sp. n.

Body ochraceous; head with four basal black spots between the eyes; pronotum with six spots (two central placed transversely and two on each side obliquely); mesonotum with five spots, also black: legs reddish; apices of the femora, annulations to the anterior and intermediate tibiæ, and the tarsi black.

Tegmina pale greenish, the basal half with some large ochraceous spots, followed by an obscure dull ochraceous transverse fascia, and with the following bright shining black spots, viz.:—one at base, four along costal margin, and some twenty-five or more on apical area. Wings pale greenish white, the apex slightly ochraceous, and containing about twelve small black spots.

Long., excl. tegm., 13 millim.; exp. tegm. 40 millim.

Hab. Nyassaland, Zomba (*Dr. Percy Rendall*).

A species somewhat allied to *P. gloriosus*, Karsch.

Fam. Cercopidæ.

Genus LOCRIIS.

Locris Rendalli, sp. n.

Head and pronotum black, the last with the anterior and lateral margins and two transverse spots on disk ochraceous. Abdomen above sanguineous, slightly fuscous at lateral margins. Body beneath and legs blackish; eyes and lateral margins of prosternum ochraceous; posterior tibiæ, excluding bases and apices, pale sanguineous.

Tegmina blackish; basal streaks, two transverse fasciæ, and a subapical patch ochraceous. Wings pale fuscous, semihyaline, the outer apical margin darker; extreme base narrowly sanguineous.

Long. 9 millim.; exp. tegm. 21 millim.

Hab. Nyassaland, Zomba (*Dr. Percy Rendall*).

This species, by the colour and markings of the tegmina, is closely allied to the West-African *L. maculata*, Fabr., but differs from all the varietal forms of that species by the ochraceous margins to the pronotum and by the absence of the ochraceous frontal margins to the head. The pronotum is also broader.

Why these two species, or geographical forms of one species as they may some day be more correctly identified, should on the east and west sides of the continent have developed a difference in the structure and markings of the pronotum is one of the still unsolved problems in specific evolution, and unexplained by any of the colour theories now proposed in speculative entomology.

Locris Junoti, sp. n.

Head, pronotum, scutellum, basal third and apical margin of tegmina, face and legs sanguineous; tegmina (excluding base and apical margin) pale creamy ochraceous, mottled with pale fuscous, the apical third distinctly darker ochraceous, containing a dark fuscous spot. Eyes, ocelli, two spots on anterior area of pronotum, sternum, abdomen beneath, and bases of femora piceous.

Long., incl. tegm., 8 millim.

Hab. Delagoa Bay (*Junot*).

This species, by its singular coloration, is nearest allied to *L. concinna*, Dist., and it is peculiar that we must cross the continent to Damaraland to find its nearest specific ally. Of course, collectors may subsequently find the two species less

estranged, but according to present knowledge they differ materially.

Of other species of *Locris* in my collection I may mention:—

Nyassaland.

L. areata, Walk. Fort Johnson (*Dr. Percy Rendall*).

Mashunaland.

L. arithmetica, Walk. Salisbury (*Guy Marshall*).

Transvaal.

L. arithmetica, Walk. Pretoria (*Distant*); Zoutpansberg (*Kaesner*).

L. areata, Walk. Barberton (*Dr. P. Rendall*).

L. incarnata, Walk. Zoutpansberg (*Distant*); Rustenburg (*Distant*).

L. sanguinipes, Walk. Pretoria (*Distant*).

Delagoa Bay.

L. areata, Walk. Lourenco Marquees (*Junot*).

L. Junoti, sp. n. „ „ „

Natal.

L. areata, Walk. Durban (*Distant*).

L. transversa, Thunb. Isipingo, Durban (*Guy Marshall*).

Genus TOMASPIS.

Tomaspis Monteironis, Dist. Trans. Ent. Soc. 1878, p. 176;
Aid Ident. Ins. t. cxlviii. fig. 4.

Tomaspis conspicua, Dist. Trans. Ent. Soc. 1878, p. 148;
Aid Ident. Ins. t. cxlviii. fig. 2.

I have now acquired an intermediate form which connects the above supposed species together:—

Var. *a*.—Tegmina black; unspotted.

T. Monteironis, Dist. *suprà*.

Hab. Delagoa Bay (*Monteiro, Junot, Distant*).

Var. *b*.—Tegmina with a small central transverse sanguineous spot.

Hab. Delagoa Bay (*Junot*).

Var. *c*.—Tegmina with a very large central sanguineous spot.

T. conspicua, Dist. *suprà*.

Hab. Nyassaland; Mashunaland, Gadzina (*Guy Marshall*).

Tomaspis appears to be a tropical and subtropical genus only. I never met with it in any of my collecting expeditions in the Transvaal. Delagoa Bay at present is its recorded southern limit; but probably it may be found in Durban, where much is still to be done, apart from Lepidoptera, and where other species only previously known in Mozambique have been discovered.

XII.—*A Contribution to the Biology of the Social Wasps of Brazil.* By H. VON IHERING*.

IT is nowadays very difficult and—particularly in cases where special attention has to be paid to the literature of extra-European countries—barely possible to guarantee full cognizance of all that has been written upon a biological theme. Consequently something may have escaped my notice even in respect of the subject about to be discussed, although, on the whole, the statements in the following paper will probably be new to my scientific colleagues.

On studying the various special memoirs or the descriptions in handbooks &c., we invariably find that the account of the life of the social wasps is altogether European, based exclusively upon the facts to be observed in Europe and in the holarctic region in general. In order to make myself intelligible upon this point, let me briefly refer to what is generally known. The social life of the European wasps is eminently adapted to the harsh climate of Europe. There are in Europe, so far as is at present known, no wasp-communities that hibernate regularly, though even as to this I must nevertheless be allowed to entertain doubts with regard to the extreme south of Europe, especially with reference to *Polistes*. In autumn the community separates, the workers and males perish, while the fertilized females alone hibernate and commence the foundation of a new colony in the spring.

How utterly different is the case here! Even *Polistes*, the single genus of social wasps common to Europe and Brazil, behaves somewhat differently. Here, too, it is the rule for the community to be dissolved in winter; but nevertheless in July, therefore in mid-winter, we meet with colonies of *Polistes versicolor*, Fabr., still surviving and continuing to

* Translated by E. E. Austen from the 'Zoologischer Anzeiger,' Bd. xix. no. 516 (November 2, 1896), pp. 449-453.